

## A Puzzling Conversation

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Puzzle: a question, problem, toy, or contrivance designed to test ingenuity. (Websters, 1966:1851)

I first became interested in the conversational aspects of puzzling because of a comment made to me during a riddling session. Fellow folklore student Brent Cantrell had asked me a riddle and I was furiously thinking, trying to come up with an answer, when finally he said in disgust, "You take too long." I had violated a rule of current riddling behavior. It occurred to me that this violation was a holdover from my childhood when my physicist father used to ask us puzzles. It seemed to me that while riddling conversations involve short exchanges in a competition to solve riddles. I decided to look more closely at puzzles as they actually occur in conversation. While I have seen puzzle books (e.g., Gardiner: 1959) and collections of folklore which include puzzles (Carpenter 1980: 230-31; White 1952: 311), I have never seen any works documenting puzzles as a conversational activity. This paper then, examines a puzzling conversation. It is descriptive in intent. I will look briefly at the context, form, and history of the puzzle and suggest some general comparisons to riddles. I will examine the exchanges between the participants and point out features of interest. No general conclusions about puzzles as a genre will be drawn from this one case, for the word "puzzle" encompasses things as diverse as New York Times crosswords and Chinese boxes. But I will put forth some ideas about puzzles as a conversational enactment and suggest some questions which may promote further study of this genre.

### The Balloon in the Airplane Puzzle

So that was going on and then there was another one that had to do with an airplane and, uh, if are in a jet that's taking off, uh, and uh, you believe in inertia, what do you think a helium bal-

loon will do if you're sitting in a seat and it's rolling down the runway and the helium balloon is say per- it's straight up and down. Will it go forward or backward? That was another one that, or another puzzle. There were some others but I can't remember because I got involved with the three hats one.

## Context

I had come home from class, it was evening and I was discussing my interest in puzzles with my roommate and complaining that while I had been involved in puzzling sessions at various times, it seemed like they only happened once every three or four years. My roommate mentioned that he had been in a puzzling session just last week. This was an opportunity to get a second hand account fairly fresh in memory, so I got my tape recorder and began interviewing him. Although the session began as a formal interview, after about half an hour we lapsed into natural conversation as we tried to work out the balloon in the airplane puzzle. I believe this session was a representative example of puzzle-solving behavior.

The manner in which this interview turned into a puzzling session parallels the development of another puzzling session described by my roommate: "...professor (Winnie) had just been, uh, giving riddles in his class, not riddles, uh, uh, puzzles." So, initially the puzzles were posed in a formal situation. Later, during the casual atmosphere of a party, it became a puzzling session: "...it just happened spontaneously, because it had come up in class and I wasn't in class and uh, they were all, they just, talking about it and the next thing we knew we were all thinking of all the puzzles we could think of, we all just started posing them." Based on my experience and this parallel within my data, I would say that I recorded a fairly natural puzzling context.

## Form, Content, and History

Puzzles are generally longer than riddles. The airplane, for instance, has four condition statements and a question to be solved based

on these conditions. Riddles generally consist of a single question (for instance, "what's black and white and read all over," or "how many folklorists does it take to change a lightbulb"). In content, puzzles often have to do with mathematical issues, physical laws, or curious situations. Riddles, on the other hand, are most commonly associated with some sort of word play.

However, neither length nor content exclusively define or separate riddles or puzzles as genres, for there is a great deal of overlap between the two. Common usage and dictionary definitions often make little distinction between puzzles and riddles (see *Heritage Dictionary* 1975: 1063; 1117). Also, there are questions which seem very riddle-like in form which appear as puzzles in puzzle books and in oral tradition. For instance: "What is the difference in weight between half a dozen dozen pounds of gold and six dozen dozen pounds of feathers?" (Gardiner 1959: 78). This question may be considered a riddle, for it is a short question and it has a block element in the mistaken equation of "six" and "half" based on the common proverbialism "six of one, half a dozen of another." (A common wrong answer is "there's no difference.") However, this question may also be taken as a puzzle, for it is not only a simple mathematical calculation  $[(6 \times 12 \times 12) - (6 \times 12)]$ , but also a more complex issue of the difference between gold weighing standards (avoirdupois) and regular weight (troy). One might best distinguish this question as a puzzle or riddle by the intent of the questioner or the amount of time the questionee takes to consider an answer.

The history of the balloon in the airplane puzzle is quite interesting. It first appears as an incident which happened to a physicist in an airplane and is reported in an article called "Rational Prediction" (Salmon 1981: 115-125). In this article, the incident is reported as followed: a physicist upon boarding an airplane, notices a small boy holding a helium-filled balloon. The physicist asks: "If you hold the string as you are now, what do you think the balloon will do when the airplane accelerates before taking off?"

In the first lines of my interview there is a third hand account of an I.U. professor

presenting it in class. Another informant says she remembers him telling it in a coffee room in one of the buildings on campus. In a telephone conversation I had with the professor later, he stated the puzzle thus: "A little girl gets on a plane and sits down with a helium balloon. As the plane starts to accelerate, she lets go off the balloon. If you believe in the law of inertia, what do you think the balloon will do?" Finally, this puzzle was introduced at a party which later gets reported and worked on in an interview with a folklorist. Thus we see that this puzzle had a fairly complex line of transmission, first as a real incident which is talked about, and is reported in an article. Then it is used as a teaching device, appears at a party, and finally is recorded and written down again in a folklorist's article.

### The Solving Process

17. M: So I wondered about this uh, this little case of you're inside the airplane similar type of type of..
18. W: Yeah, you wouldn't think that the air would, the air inside the airplane
19. M: It would have to be perfectly sealed.
20. W: Yeah, REALLY sealed.
21. M: Is that what they're talking about?
22. W: Yeah, I guess so.
23. M: I assume it would have to be perfectly sealed.
24. W: Uh, maybe not, maybe that's the only way it would work, because you could get the answer if somehow, like the air moves?
25. M: Oh, yeah?
26. W: I have no idea why.
27. M: As it takes off the runway -
28. W: Actually, yeah, we should try that. I'm going to be flying on March 13th, and I have a helium balloon I should uh...
29. M: Why do you go backwards in your seat then?
30. W: I don't think you do go backwards, uh, I think the plane picks you up and carries you.
31. M: Oh I see.
32. W: Now why the balloon should go forward, I don't know, unless there's some problem of pressure.
33. M: Yeah, the back of the airplane catches the air and bounces it back.
34. W: Yeah, I have no idea, I uh, I never heard a clear

- explanation.
35. M: Okay, yeah, if it's perfectly sealed, yeah, let's say it IS perfectly, uh, uh, sealed, okay, the air is standing there and the plane and the only thing, the air and when the plane starts moving forward, the air doesn't move forward because it's not part of the plane.
36. W: Yeah, it must be, there will be some give, but it must be carried by the airplane.
37. M: But yeah, but what about the fly in a car, those things//
38. W://That will drive you crazy.
39. M: Yeah but this is, this is a famous problem too. You throw a fly outside the car and you put on the brakes immediately, or something like that, okay, assume you can stop instantaneously, you're going fifty miles an hour, you throw the fly out and you stop instantaneously.
40. W: The fly goes forward//
41. M://Yeah it goes forward but the balloon//
42. W://It would probably go forward too if you were able to stop instantaneously.
43. M: Yeah but I was thinking the airplane is still, it's accelerating everything it's carrying that's not strapped down. Neither is the air.
44. W: That's right.
45. M: Okay, but the, the walls of the plane are strapped down. That's what I meant it's part of the airplane, more, more a part of the airplane than the air was. You're talking about people being caught by the plane, that's why you back in your seat. It's a seat actually moving into you.
46. W: Yeah.
47. M: But so the air, the air stays still, here's the body of air and here's the, the back of the plane [demonstrates with hands] the airplane starts to move...
48. W: Yeah, the balloon moves back//
49. M://NO, the balloon's still there, the air stays there until there's enough pressure to start the air moving forward.
50. W: Right//
51. M://Also the same thing//
52. W:// So wouldn't the balloon appear to be moving backward as the air gets punched against the back?
53. M: The air doesn't move until, the air's not being pushed back at all.
54. W: Uh huh.

55. M: The plane is coming forward against it.
56. W: Uh huh, but you're in the plane and, if//
57. M://So?//
58. W://if you're holding the balloon//
59. M://Okay, you're okay//
60. W://Right the plane//
61. M://Okay, the back's moving into you like this [demonstrates with hands]
62. W: And the balloon's here, because the air hasn't started moving yet, and it come forward...
63. M: Okay, it might appear to go back because you're being scrunched back in your seat...
64. W: Right.
65. M: For a second, but the balloon actually hasn't moved yet.
66. W: Right.
67. M: What happens though is enough pressure builds up in the back that there's a reaction pushing the air forward.
68. W: Right.
69. M: Pushing the air forward and since the pressure in the back is greater than in the front, it moves back toward the front and pushes the balloon forward.
70. W: Yeah.
71. M: But it might appear as if it, to go backwards.
72. W: At first.
73. M: Yeah.
74. W: Yeah it would probably go back and then forward, YEAH! that makes sense.
75. M: It wouldn't go back, it would only go forward, but it would appear to go back, well I guess it depends on your perspective.

I would like to look at this puzzle as a kind of speech act. I shall compare the proposed sets of felicity conditions for questions and riddles (McDowell 1979: 21-30) to what seems to be going on in this puzzle. But further, since solving the puzzle is a process which constitutes the bulk of this conversation, I shall also point out other interesting features which may be important in conversational puzzling.

Generally, a questioner wants to know a piece of information of which he is ignorant, expecting the person he questions to know the answer ("a piece of information (x)"). McDowell shows that a riddle is the inverse of this, for

the riddler, asking what looks like a question, already knows the answer and expects that the person he is asking (the riddlee) doesn't know it but wants to. Now, at least in this one case, a puzzle fits neither of these conditions. Neither the puzzler (W) nor the puzzleee (M) knows the answer. Although W had "heard some kind of solution," he "wasn't sure even that was right." Since quite some time was spent debating the solution, we can conclude that both people wanted to know the answer.

In a question, the questioner believes the person he is asking knows the answer and hopes that he can elicit it from him. In a riddle, the riddlee believes the riddler knows the answer and expects that, failing to work out the answer himself, he will be able to elicit the answer from the riddler. Again, in the case of puzzles, we have something different. In the balloon puzzle, both the puzzler and the puzzleee believe that neither knows the answer, but both expect that they ought to be able to figure it out. Although McDowell does not mention the following for questions, I believe he might agree that a questioner allows a certain amount of time for the questionee to retrieve an answer. He does mention that a riddler "countenances" the riddlee's attempts to "divine" the answer (McDowell 1979: 29).

In the balloon puzzle, the greatest amount of time was devoted to divining the solution. This indicates to me that the time allowed for this process may be one of the defining characteristics of puzzles. A truly felicitous question supposes a quick answer. A truly felicitous riddle allows the riddlee to try and figure the answer out, but I believe that currently (in U.S. Midwest culture) the time allowed is short, as is evidenced by the comment which sparked this paper: "you take too long." I would suggest that a truly felicitous puzzle allows as much time as the puzzleee wants to take to solve it. I believe that the differential amount of time spent seeking a solution in questions, riddles, and puzzles may prove an important characteristic which distinguishes these genres.

The following seem to me to be interesting features of the puzzle solving process. First,

the participants establish parameters. By this I am referring to parts of the puzzle which are elaborated by the participants: the fact that the plane is sealed (lines 19-33), that pressure is a factor (line 32), and that perspective may be important (lines 61-75). None of these conditions are explicitly referred to in the puzzle statement, but they are crucial to the solving of the puzzle. It is as if the puzzle is partially recreated by the participants each time it is discussed. (1) Is the establishment of parameters a part of all puzzling conversations, or is it that this puzzle is so new that it has not been fully elaborated? Perhaps this is part of the variation process.

It is also interesting to note what kind of persuasive appeals (arguments) are made. First, (line 28) there is an appeal to experiment. This is one of the final authorities in a puzzle of this kind. Although Salmon gives the solution (which we later "looked up," another kind of appeal used in puzzles) neither participant accepted this without proof. Since an experiment cannot be done at the time of the puzzle, other kinds of appeals are also made. In line 29 there is an appeal to common sense: "Why do you go backwards in your seat then?" This common sense notion is shown to be mistaken from the airplane's point of view. I think this controversion of common sense is a kind of block element which appears in many puzzles.

Thirdly, (lines 37-43) there is an appeal by analogy to a similar puzzle. Although this appeal did not work, it is a similar type of problem in that it involves a free body (not strapped down) within a moving body. The questions and conditions are different but the same physical laws should be in effect. I think further study might find that puzzling conversations often involve this kind of appeal and further, that this may be one of the ways other puzzles get introduced, thus turning single puzzling conversation into a puzzle session.

Finally, I would point out the use of hands (see lines 47 and 61) as an appeal to visual representation. I believe this happens often in puzzle situations; people move their hands, write things down, or draw on paper, attempting to communicate more clearly. This kind of appeal



is not exclusive to puzzles for it occurs in riddling also.

Another feature of this session, along with the establishment of parameters and appeals arguing for those parameters and for the solution, is competition. Although M and W neatly trade arguments in a fairly relaxed manner, there are more intense competitive moments of overlapping speech (//) at various times throughout the conversation. Why do they appear where they do? What relationship does this kind of competition have to holding the floor in other kinds of conversation? What relationship does it have to the competitive arena of riddling?

In conclusion I would like to raise some questions about puzzles as a genre which could be pursued with further fieldwork. First, where do puzzles come from? We have some indications in this puzzle that they arise out of real events which pique the curiosity of some observer. There are collections of puzzles such as Sam Lloyd's *'Cyclopedia of Puzzles'* (1914), but where did he get them? If one compares the type of puzzles presented in this book to school textbooks such as Dubb's *Mental Arithmetic* (1921), one finds very similar questions (compare Dubb 1921: 210, #14 to Gardiner 1959: 2, #3). What influence do puzzle collections, textbook problems and oral tradition have on each other?

Finally, the mode of transmission is another interesting question. We have seen that puzzles exist in conversational settings, are passed around, and changed as they proceed, but they are also transmitted through books, newspapers and magazines. What group or groups transmit puzzles? We have seen that puzzles, at least in this case, are games which are orally transmitted, exist in multiple variant forms and arise out of everyday situations. They deserve further study.

**NOTE**

1. This puzzle is still under debate. The supposed solution is that the balloon goes forward, but explaining why, that is demonstrating the truth without actually doing it in an airplane, is still an issue. The answer M found in the recorded conversation implies a kind of wind effect. But it has been suggested that it is instead a pressure gradient which causes the balloon to float forward. Exactly how this happens, and whether cabin pressure in the plane has an effect on this process, still need explanation. We see that the time spent on a puzzle may go on indefinitely and that parameters and arguments may continue to be added in searching for an explanation which makes sense in light of our initial expectation that the balloon will go backward, just as we experience acceleration. In puzzling, the explanation of the answer is as important as having the answer.